



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER OF PATENTS AND TRADEMARKS  
Washington, D.C. 20231  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/401,352	09/27/1999	DAVID L. NAYLOR	74557	4565

7590 10/03/2002

JON P CHRISTENSEN ESQ  
WELSH & KATZ LTD  
120 SOUTH RIVERSIDE PLAZA 22ND FLOOR  
CHICAGO, IL 60606

EXAMINER

FERRIS III, FRED O

ART UNIT	PAPER NUMBER
----------	--------------

2123

DATE MAILED: 10/03/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/401,352

Applicant(s)

NAYLOR ET AL.

Examiner

Fred Ferris

Art Unit

2123

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 27 September 1999.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-32 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-32 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 September 1999 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☒ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413) Paper No(s) \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

### **DETAILED ACTION**

1. *Claims 1-32 have been presented for examination. Claims 1-32 have been rejected by the examiner.*

### **Drawings**

2. *This application has been filed with informal drawings which are acceptable for examination purposes only. Formal drawings will be required when the application is allowed.*

*The drawings are objected to because of improper margins (37 CFR 1.84(g)), character of lines/numbers/characters (37 CFR 1.84(i)), shading (37 CFR 1.84(m)), and numbers/letters/reference characters (37 CFR 1.84(p)). (see PTO-948) A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.*

### **Specification**

3. *The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed. Specifically, both the abstract and the independent claims reference a method and apparatus for assembling a physical system. Applicants have not claimed features relating to "Configuration and Performance of Measurement Requests". Accordingly, the examiner suggests a more descriptive title such as "Method and Apparatus for Remotely Assembling a Physical System".*

***Claim Rejections - 35 USC § 112***

4. Claims 1-32 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for "transferring and element list from the remote location to an element controller", **does not reasonably provide enablement for the following:**

Independent Claims 1 and 13:

- creating **graphical representation of system** at remote location (elements/connections)
- converting graphical representation to **list (elements/interconnection/properties)**
- assembling/operating system** by element controller

Dependent Claims 2-12, 14-23:

- providing GUI and graphical display of structural elements**, forcing functions and measurement instruments (dragging icons reference to assembly area)
- connecting icons** of elements in **assembly area**
- spawning task object in element controller** on receipt of element list
- composing task object** from user-requested task elements
- composing modified task object from task elements and **validating parameters**
- assembling system** comprising **closing contacts** in matrix switch
- connecting forcing function to assembled elements

Independent Claim 24:

- conversion processor** to convert graphical representation to list (elements/interconnections)
- communication processor** to transfer element list from remote location to element controller
- element controller** to assemble/operate system IAW element list

Dependent Claims 25-32:

- connector routine** to connect icons of elements within assembly area
- task object to decompose element list** into set of task elements
- forcing function** to load the physical system

*The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention commensurate in scope with these claims. Specifically, while the reference makes reference to creating, converting, and assembling, from "a graphical representation of*

*the system", it does not teach the process or provide an algorithm or methodology that would allow one of ordinary skill to make and/or use the invention. The specification makes reference to performing **tests** and **measurements** (also, "test results" and "measurement capabilities") but does specifically not teach how the tests or measurements are performed. Further, while terms such as "task object", "resource allocating object" and "matrix object" are mentioned in the specification, no definition or explanation is given as to precisely what information is contained in these objects or specifically how they are used by the system. The operation of the conversion, communication, and element processors/controllers are also not described in a manner that would allow one of ordinary skill to make and/or use the invention. In general, the specification appears to be a "wish list" of features and does not specifically teach how these features are actually realized in the invention.*

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

**5. Claims 1-32 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 6,121,965 issued to Kennedy et al, in view of U.S. Patent 5,950,201**

***issued to Van Huben et al, in further view of U.S. Patent 5,821,934 issued to Kodosky et al.***

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

*The specification for the claimed invention is delinquent in the areas cited above (see 112(1) rejection). Accordingly, the examiner has made prior art rejections based on the limited scope of the information provided in the disclosure.*

Claims 1-12 are drawn to:

method of **assembling/operating physical system from remote location** and:  
creating **graphical representation of system** at remote location  
(elements/connections)  
converting graphical representation to **list (elements/interconnection/properties)**  
transferring element list from remote location to element controller  
**assembling/operating system** by element controller  
**providing GUI and graphical display of structural elements**, forcing functions and  
measurement instruments (dragging icons reference to assembly area)  
**connecting icons** of elements in **assembly area**  
**spawning task object** in element controller on receipt of element list  
**composing task object** from user-requested task elements  
composing modified task object from task elements and **validating parameters**  
**assembling system** comprising **closing contacts** in matrix switch  
**connecting forcing function** to assembled elements  
**recording system response** to forcing function  
**transferring graphical representation of system** response to remote location  
**defining element list as netlist**

Regarding claims 1-12: Kennedy teaches creating a **graphical representation of a system containing elements and connections** (Fig. 3-5) in an on-screen workspace area (Fig. 2), providing **GUI and graphical display of structural elements, connecting icons of elements in an assembly area** (dragging icons) to **assemble** a completed system design. (Abstract, Summary of Invention (especially, CL2-L27-33, CL47-L47-52), CL5-L13-45, CL4-L7-37, Figs. 1-6) In addition to being taught by Kennedy, these features are well known in the art and available on nearly any commercially available CAD/CAM software package. (Mentor, Cadence, Spice, AutoCad, etc.)

Kennedy does not explicitly teach facilitating the remote manufacturing of a physical structure.

Van Huben teaches a system for concurrent engineering and facilitating the **remote manufacturing** (world wide via terminals) of a **physical system** by coordinating the transfer of **design information to remote locations (graphical representation, element lists (net lists), etc.)** (CL80-L59), and further teaches **tracking (recording)** the system response and remotely **spawning (launching) tasks** (CL20-L28-31) that can be **user composed/modified**. (Abstract, Summary of Invention, CL20-L54-CL23-L15, Figs. 1, 10, 16) These techniques, in particular creating and spawning tasks, in addition to being taught by Van Huben, are also well known in the art.

Kennedy further does not explicitly teach validating design parameters.

*Kodosky teaches the **validation of design parameters** and further teaches the **conversion** of data parameters (CL40-L58) the **transferring of system** response parameters and **graphics data**. (CL11-L23-51, Fig. 5) Kodosky also teaches recording and transferring test parameters (waveforms, timing, voltage measurements, etc) and again teaches the graphical representation and interconnection of system components. (Abstract, Summary of Invention, CL4-L10-15, CL9-L54-CL10-L64, Figs. 5, 6, 11-12, 19-28, 38, 42-88, 91)*

*It would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to modify the teaching of Kennedy relating to creating a **graphical representation of a physical system** containing **elements and connections** in an on-screen workspace area, with the teachings of Van Huben relating to concurrent engineering and facilitating the **remote manufacturing** (world wide) of a **physical system**, and to further modify the teachings of Kennedy with the teachings of Kodosky relating to the **validation of design parameters** and the **conversion** of data parameters, to realize the claimed invention. An obvious motivation exists since, as referenced by prior art, remotely managing collaborated design and prototyping allows design parameters to be easily, accurately, and expediently changed. It would further have been obvious, and necessary, to include the features relating to assembling system **matrix switch** and **forcing function** elements.*

*Regarding claims 13-23: Claims 13-23 are merely claim the **apparatus** and **means** for the features outlined in claims 1-12 and are therefore rejected using the same reasoning as previously cited above.*



Claims 24-32 are drawn to:

Apparatus for **assembling/operating physical remote location** and:

**remote terminal** to create graphical representation of elements and connections

**conversion processor** to convert graphical representation to list  
(elements/interconnections)

**communication processor** to transfer element list from remote location to element  
controller

**element controller** to assemble/operate system IAW element list

**GUI for graphical representation** of structural elements, forcing functions and  
measurement instruments.

**pointer to drag icons** of elements to graphical representation in assembly area

**connector routine** to connect icons of elements within assembly area

**task object to decompose element list** into set of task elements

**forcing function** to load the physical system

**measurement instrument** to record system response to forcing function

**matrix switch** to interconnect structural elements forcing function measurement  
instrument

task object to transfer graphical representation of system response to remote location

*Regarding claims 24-32: As previously cited, Kennedy teaches creating a  
**graphical representation of a system containing elements and connections** (Fig. 3-  
5) in an on-screen workspace area (Fig. 2), providing GUI representation and  
**graphical display of structural elements, connecting icons of elements** in an  
**assembly area** (pointing/dragging icons) to **assemble** a completed system design  
via a connector routine. (Abstract, Summary of Invention (especially, CL2-L27-33,  
CL47-L47-52), CL5-L13-45, CL4-L7-37, Figs. 1-6) In addition to being taught by  
Kennedy, these features are well known in the art and available on nearly any  
commercially available CAD/CAM software package. (Mentor, Cadence, Spice,  
AutoCad, etc.) Kennedy further discloses an processor (Fig. 1A) that controls elements  
(**element processor**) on a standard PC work station (terminal including a pointing  
device) that can be **communicated with remotely**. (CL3-L14-64)*

*Kennedy does not explicitly teach facilitating the remote manufacturing of a physical structure.*

*Van Huben teaches a system for concurrent engineering and facilitating the **remote manufacturing** (world wide via terminals) of a **physical system** by coordinating the transfer (via **communication process**, Fig. 16-8, CL66-L41-CL67-L24) of **design information to remote locations** (graphical representation, element lists (net lists), etc.) (CL80-L59), and further teaches **tracking (recording)** the system response and remotely **spawning (launching) tasks** (CL20-L28-31) that can be **user composed/modified**. (Abstract, Summary of Invention, CL20-L54-CL23-L15, Figs. 1, 10, 16) These techniques, in particular creating and spawning tasks, in addition to being taught by Van Huben, are also well known in the art.*

*Kennedy further does not explicitly teach validating design parameters.*

*Kodosky teaches the **validation of design parameters** and further teaches the **conversion** (conversion process) of data parameters (CL40-L58) the **transferring of system** response parameters and **graphics data**. (CL11-L23-51, Fig. 5) Kodosky also teaches recording and transferring test parameters (waveforms, timing, voltage, instrument measurements, etc) and again teaches the graphical representation and interconnection of system components. (Abstract, Summary of Invention, CL4-L10-15, CL9-L54-CL10-L64, Figs. 5, 6, 11-12, 19-28, 38, 42-88, 91)*

*It would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to modify the teaching of Kennedy relating to creating a **graphical representation of a physical system** containing elements and*

***connections** in an on-screen workspace area, with the teachings of Van Huben relating to concurrent engineering and facilitating the **remote manufacturing** (world wide) of a **physical system**, and to further modify the teachings of Kennedy with the teachings of Kodosky relating to the **validation of design parameters** and the **conversion** of data parameters, to realize the claimed invention. An obvious motivation exists since, as referenced by prior art, remotely managing collaborated design and prototyping allows design parameters to be easily, accurately, and expediently changed. It would further have been obvious, and necessary, to include a system **matrix switch** for interconnecting **structural elements** in order to accommodate the **forcing function** and **measurement instrument** since the system is required to externally "switch in" and "force" a **load** on the circuit element, and then **take measurements to record system response to the forcing function**.*

### **Conclusion**

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure, careful consideration should be given prior to applicant's response to this Office Action.

U.S. Patent 5,572,430 issued to Akasaka teaches remote manufacturing design and validation.

U.S. Patent 5,511,108 issued to Severt teaches remote test monitoring and validation.

U.S. Patent 6,202,070 issued to Nguyen teaches remote computer manufacturing.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Fred Ferris whose telephone number is 703-305-9670 and whose normal working hours are 8:30am to 5:00pm Monday to Friday.

Any inquiry of a general nature relating to the status of this application should be directed to the group receptionist whose telephone number is 703-305-3900.

The Official Fax Numbers are:

After-final	(703) 746-7238
Official	(703) 746-7239
Non-Official/Draft	(703) 746-7240

*Fred Ferris*, Patent Examiner  
Simulation and Emulation, Art Unit 2123  
U.S. Patent and Trademark Office  
Crystal Park 2, Room 2A22  
Crystal City, Virginia 22202  
Phone: (703) 305 - 9670  
FAX: (703) 305 - 7240  
Fred.Ferris@uspto.gov

*Wm. T. Hansen*  
AU 2123

September 18, 2002

Attachment for PTO-948 (Rev. 03/01, or earlier)  
6/18/01

The below text replaces the pre-printed text under the heading, "Information on How to Effect Drawing Changes," on the back of the PTO-948 (Rev. 03/01, or earlier) form.

**INFORMATION ON HOW TO EFFECT DRAWING CHANGES**

**1. Correction of Informalities -- 37 CFR 1.85**

New corrected drawings must be filed with the changes incorporated therein. Identifying indicia, if provided, should include the title of the invention, inventor's name, and application number, or docket number (if any) if an application number has not been assigned to the application. If this information is provided, it must be placed on the front of each sheet and centered within the top margin. If corrected drawings are required in a Notice of Allowability (PTOL-37), the new drawings **MUST** be filed within the **THREE MONTH** shortened statutory period set for reply in the Notice of Allowability. Extensions of time may **NOT** be obtained under the provisions of 37 CFR 1.136(a) or (b) for filing the corrected drawings after the mailing of a Notice of Allowability. The drawings should be filed as a separate paper with a transmittal letter addressed to the Official Draftsperson.

**2. Corrections other than Informalities Noted by Draftsperson on form PTO-948.**

All changes to the drawings, other than informalities noted by the Draftsperson, **MUST** be made in the same manner as above except that, normally, a highlighted (preferably red ink) sketch of the changes to be incorporated into the new drawings **MUST** be approved by the examiner before the application will be allowed. No changes will be permitted to be made, other than correction of informalities, unless the examiner has approved the proposed changes.

**Timing of Corrections**

Applicant is required to submit the drawing corrections within the time period set in the attached Office communication. See 37 CFR 1.85(a).

Failure to take corrective action within the set period will result in **ABANDONMENT** of the application.